

2. (Amended) A recombination system according to Claim 1, wherein said first DNA comprises at least a first segment of a first gene of interest, said recombination system further comprising:

(iii) a second DNA[, ~~wherein said second DNA is selected from~~] comprising:

(a) at least a second [~~portion~~] segment of said first gene of interest, or

(b) at least a [~~portion~~] segment of a second gene of interest;

wherein said second DNA contains at least one FLP recombination target site; and wherein said second DNA, when combined in reading frame with said first DNA, provides a functional gene.

3. (Amended) A recombination system according to Claim 2 wherein said second DNA comprises [~~an additional portion~~] said second segment of said first gene of interest.

4. (Amended) A recombination system according to Claim 2 wherein said second DNA comprises [~~at least a portion~~] said segment of [~~a~~] said second gene of interest.

5. (Amended) A recombination system according to Claim 4 wherein said [~~portion~~] segment of said second gene of interest, when combined in reading frame with said first DNA, provides a hybrid, functional gene.

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6. (Amended) A recombination system according to Claim 4 wherein said ~~[portion]~~ segment of said second gene of interest, when combined with said first DNA, disrupts the function of said first gene of interest.

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8. (Amended) A recombination system according to Claim 1 wherein the FLP recombinase is ~~[derived]~~ from a species of the genus Saccharomyces.

9. (Amended) A recombination system according to Claim 1 wherein the FLP recombinase is ~~[derived]~~ from a strain of Saccharomyces cerevisiae.

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10. (Amended) A recombination system according to Claim 9 wherein said FLP recombinase is encoded by the ~~[approximately 1450 base pair]~~ sequence set forth as ~~[Sequence ID No. 1]~~ SEQ ID NO:1.

11. (Amended) A recombination system according to Claim 1 wherein said first DNA provides a readily analyzable marker feature to ~~[the]~~ a host into which said system is introduced.

12. (Amended) A recombination system according to Claim 2 wherein said second DNA provides a readily analyzable marker feature to ~~[the]~~ a host into which said system is introduced.

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14. (Amended) A DNA construct comprising, as an autonomous fragment, in the following order, reading from 5' to 3' along said fragment:

- (a) a first FLP recombination target site,
- (b) an insert [~~portion~~] segment comprising [~~in any suitable sequence~~]:

- (1) at least one restriction endonuclease recognition site,
- (2) at least one marker gene,
- (3) a bacterial origin of replication, and optionally
- (4) a mammalian cellular or viral origin of DNA replication, and
- (c) a second FLP recombination target site in tandem with said first FLP recombination target site.

15. (Amended) A method for the assembly of functional gene(s), which is (are) then suitable for activation of expression in mammalian cells, by recombination of individually inactive gene segments [~~derived~~] from one or more gene(s) of interest, wherein each of said segments contains at least one recombination target site, said method comprising:

contacting said individually inactive gene segments with a FLP recombinase, under conditions suitable for recombination to occur, thereby providing a DNA sequence which encodes a functional gene of interest.

16. (Amended) A method according to Claim 15 wherein the FLP recombinase is ~~[derived]~~ from a species of the genus Saccharomyces.

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17. (Amended) A method according to Claim 15 wherein the FLP recombinase is ~~[derived]~~ from a strain of Saccharomyces cerevisiae.

18. (Amended) A method according to Claim 17 wherein said FLP recombinase is encoded by the ~~[approximately 1450 base pair]~~ sequence set forth as ~~[Sequence ID No. 1]~~ SEQ ID NO:1.

29. (Amended) A mammalian cell, wherein the genomic DNA of said cell contains a first DNA comprising at least one FLP recombination target site therein, wherein said cell is a nonhuman cell or an isolated human cell.

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30. (Amended) A mammalian cell according to Claim 29 wherein said ~~[FLP recombination target site in the genomic DNA of said cell is positioned within]~~ first DNA comprises at least a [portion] first segment of one or more first gene(s) of interest.

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32. (Amended) A mammalian cell according to Claim 30 wherein said first gene(s) of interest provide a readily analyzable marker feature to [the] a host [system] into which said cell is introduced.

33. (Amended) A mammalian cell according to Claim 29 wherein said FLP recombination target site has the sequence:

5'-GAAGTTCCTATTCTCTAGAAAGTATAGGAACTTC-3' [~~7~~  
~~or functional equivalents thereof~~].

34. (Amended) A mammalian cell according to Claim 30 further comprising [~~an additional~~] a second DNA [~~fragment~~], wherein said [~~additional~~] second DNA [~~fragment is selected from~~] comprises:

(a) at least a second [~~portion~~] segment of said first gene of interest, or

(b) at least a [~~portion~~] segment of a second gene of interest;

wherein said second DNA contains at least one FLP recombination target site; and wherein said second DNA, when combined in reading frame with said first DNA, provides a functional gene.

35. (Amended) A transgenic, non-human mammal, wherein the genomic DNA of said mammal contains a first DNA comprising at least one FLP recombination target site [~~in the genomic DNA thereof~~].

36. (Amended) A transgenic, non-human mammal according to Claim 35 wherein said [~~FLP recombination target site is positioned within~~] first DNA comprises at least a [~~portion~~] first segment of one or more first gene(s) of interest.

39. (Amended) A transgenic, non-human mammal according to Claim 36 wherein said gene(s) of interest provides a readily analyzable marker feature to ~~[the host system]~~ said mammal.

40. (Amended) A transgenic, non-human mammal according to Claim 35 wherein said FLP recombination target site has the sequence:

5'-GAAGTTCCTATTCTCTAGAAAGTATAGGAACTTC-3' [~~7~~  
~~or functional equivalents thereof~~].

Cy 41. (Amended) A transgenic, non-human mammal according to Claim 36 further comprising ~~[an additional]~~ a second DNA ~~[fragment]~~, wherein said ~~[additional]~~ second DNA ~~[fragment is selected from]~~ comprises:

(a) at least a second ~~[portion]~~ segment of said first gene of interest, or

(b) at least a ~~[portion]~~ segment of a second gene of interest;

wherein said second DNA contains at least one FLP recombination target site; and wherein said second DNA, when combined in reading frame with said first DNA, provides a functional gene.